

BEAMFORMING ARCHITECTURE FOR MULTI-BEAM PHASED ARRAY ANTEN- NAS

Abstract

A first subarray beamformer for a multi-beam phased array antenna (12) used in a receiving mode includes multiple phased array antenna beamforming layers. The beamforming layers include a first beamforming layer (90) that may have a first series of combiners in a first orientation. The first series of combiners combine a first set of signals to form a second set of signals. A second beamforming layer (110) may have a second series of combiners in a second orientation that are coupled to and oppose the first series of combiners. The second series of combiners combine the second set of signals to form a first combined signal. A second subarray beamformer for a multi-beam phased array antenna used in a transmitting mode that has a similar configuration as that of the first subarray beamformer, but includes dividers rather than combiners.